

ADDITIONS AND CORRECTIONS TO THE BAHAMA FLORA—II

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Earlier, we presented a compilation of species new to the Bahama flora since the publication (1920) of Britton and Millspaugh's work (Gillis, Howard, and Proctor, 1973), a summary of some nomenclatural changes in the flora from usage in Britton and Millspaugh (Gillis, 1974a), and a union of species resulting from a broader approach to species concepts than employed earlier (Gillis, 1974b). Meanwhile, Correll (1974) and Hill (1974) have reported further new species to the flora. We present here, in the process of preparing a new vascular flora of the Bahama Islands and Turks and Caicos Islands, a compilation of still more additions to the flora, and additional changes in nomenclature from that in Britton and Millspaugh. Voucher specimens for plants reported here for the first time are deposited in the herbaria of the Arnold Arboretum and the Gray Herbarium, and at the Institute of Jamaica.

A D D I T I O N S POLYPODIACEAE

NEPHROLEPIS MULTIFLORA (Roxb.) Jarrett ex Morton. This Old World fern has become established in the West Indies and South Florida. It differs from *N. exaltata* by its scaly leaves and stem. Moreover, it does not have the ragged frond margins of *N. hirsutula* by which name American populations of it have been called in recent years. Both of these alternative species lack the short hairs on the upper side of the midribs of the pinnae as found in *N. multiflora*.

The species has been found near the abandoned town site of the village replaced by Freeport (Philippi) on Grand Bahama Island (Gillis 7833), from Eleuthera (Proctor 19129) and Andros (Proctor 20977). It has also been found for the first time in South Florida on Key Biscayne at Cape Florida State Park (Gillis 10856), although it is probably much more common in the southern part of Florida but has been confused with the other two species mentioned above. The recent publication of the combination for this fern is in the summary of Roxburgh fern types by Morton (1974).

Although Morton claims that New World material identified as *N. multiflora* is actually *N. exaltata*, the first author has seen the two species grow-

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ing together in South Florida where they can be seen to be distinct. Furthermore, most of our Bahama material has been annotated by Dr. Jarrett.

CYPERACEAE

FIMBRISTYLIS ANNUA (All.) R. & S. Populations of this sedge are reported from Andros and New Providence by Kral (1971).

GRAMINEAE

BOTHRIOCHLOA PERTUSA (L.) Willd. This grass was found for the first time in the Bahamas by Dunbar (from Inagua) and reported by Howard and Dunbar (1964) as *Andropogon pertusus*. Since that time, we have collected it on New Providence (Gillis 11907) and Grand Turk (Gillis 11852). It appears to be spreading rapidly throughout the archipelago. It was not known from the Bahamas at the time of Britton and Millspaugh's writing, nor at the time of Hitchcock's treatment of West Indian grasses (1936). It can easily be distinguished from its congeners by the pit in the middle of the back of the first glume, seen readily by the naked eye. It has been called an *Andropogon* by some (including the second author, GRP) but Gould (1967) preferred placing it in *Bothriochloa*.

LEPTOCHLOA UNINERVIA (Presl) Hitchc. & Chase. We report this species from Inagua (Proctor & Gillis 33930).

ORCHIDACEAE

Twelve species of orchids are mentioned in Luer's treatment of Florida orchids (1972) as having ranges in the Bahamas. Although we respect the careful work of Luer in drawing up the ranges of his species, we have not been able to find specimens to verify the presence of the following orchids in the Bahamas.

Triphora gentianoides (Sw.) Ames & Schlechter in Ames

Ponthieva racemosa (Walter) Mohr var. *racemosa*

Cranichis muscosa Sw.

Spiranthes cranichoides (Griseb.) Cogn. in Urban

Spiranthes elata (Sw.) L. C. Rich.

Tropidia polystachya (Sw.) Ames

Tetramicra canaliculata (Aubl.) Urban

Cyrtopodium punctatum (L.) Lindl.

Oncidium floridanum Ames

Oncidium luridum Lindl.

Macradenia lutescens R. Br.

Polyrrhiza lindenii (Lindl.) Cogn.

EUPHORBIACEAE

DALECHAMPIA SCANDENS L. This common species of the Greater Antilles and Central America has now been found on North Caicos, where it inhabits roadsides to the east of Bottle Creek (Proctor and Gillis 34039). From

the stinging hairs often present on the plant, especially the fruits, comes the local name "itchy bush."

ARGYTHAMNIA CANDICANS Sw. Ingram (1967) has found that Britton and Millspaugh misdetermined collections of this species and generally placed them in *A. lucayana*. A native of the Greater Antilles, this species is found throughout the southern islands in the Bahama group, and is evidently migrating northward.

ZYGOPHYLLACEAE

TRIBULUS TERRESTRIS L. This Old World weed, common in eastern United States, has now been found in the village of Conch Bar on Middle Caicos (*Gillis 12298, Proctor 34064*). This collection represents a wide disjunction from populations in the United States.

MALVACEAE

MALACHRA CAPITATA (L.) L. This species was growing at the Horse Pond or "waterworks" near Matthew Town, Inagua (*Gillis & Proctor 11713*). The nomenclature of Borssum Waalkes (1966) has been followed here. Populations known as *M. alceifolia* are occasionally segregated from *M. capitata*, depending upon one's species concept in this group.

MALACHRA URENS Poit. Despite the fact that the genus *Malachra* had not previously been reported from the Bahamas, we now have two species represented in the flora. *Malachra urens*, a weedy species, has been found in vacant lots in Nassau, New Providence (*Gillis 11893*).

MALVAVISCUS ARBOREUS var. CUBENSIS Schlecht. Instead of var. *mexicanus* which had been reported from the Islands, Schery (1942) maintained the Bahama populations were this variety of *M. arboreus*.

SIDA CILIARIS var. INVOLUCRATA (A. Rich.) Clement. In his treatment of *Sida*, Clement (1957) has recognized two varieties of this species in the Bahamas. This report of var. *involucrata* is new to the Islands.

STERCULIACEAE

AYENIA TENUICAULIS Urban. Cristobal (1960) indicated that the southern Bahamas have this species in addition to *A. insulicola*. This species differs from *A. insulicola* by its much smaller and nearly orbicular leaves and pubescent ovary and fruits, in addition to shorter ("mamiform") projections from the fruits.

MELOCHIA TOMENTOSA var. FRUTESCENS (Jacq.) DC. In his treatment of *Melochia*, Goldberg (1967) recognized a small-leaved form of *Melochia tomentosa* in the southern islands. This differs in a number of characters from typical var. *tomentosa*. The authors have found it on Mayaguana, Inagua, and in the Caicos Islands.

CUSUTACEAE

CUSCUTA GLOBULOSUS Benth. Yuncker (1965) reported the presence of

this additional species of dodder in the Bahamas on the Cay Sal Bank. This remote cluster of islands at the eastern end of the archipelago has an interesting assemblage of Cuban species in its flora.

CUSCUTA UMBELLATA Kunth. A Proctor collection (No. 8819) from South Caicos was determined by Yuncker to be this species. We have since found it on Grand Turk (*Proctor and Gillis 34044*).

CONVOLVULACEAE

IPOMOEA NIL (L.) Roth. We suspect that this species becomes introduced to the Bahamas periodically and manages to be collected from time to time and then dies out. It has not been found consistently on any island. An old collection of Wight (No. 130) from New Providence was found at the Gray Herbarium, apparently not discovered by Britton and Millspaugh when they wrote their flora. Proctor found it once again (No. 30783) on Andros in a farm area south of San Andros airfield.

BORAGINACEAE

TOURNEFORTIA STENOPHYLLA Urban. This Cuban species has turned up several times on Inagua where it appears to be well established. It was common with *T. volubilis* at Devil's Point (*Proctor 33905*), and was a primary invader on Maroon Hill (*Gillis 12116*) which had been stripped of its soil and upper layers of rock for use as fill.

LENTIBULARIACEAE

UTRICULARIA GIBBA L. Peter Taylor has examined many of the early twentieth century collections upon which B&M based their treatment of *Utricularia* in the flora. He has realigned several of the species names involved. Although true *U. foliosa* is known from the Bahamas (from Grand Bahama Island, *B&M 2679*) as indicated in the flora, most of the species originally named as *U. foliosa* by B&M should instead be called *U. gibba*.

COMPOSITAE

SPILANTHES IODISCAEA A. H. Moore. This tiny composite was found in the dry muck at the bottom of Smith's Thatch Pond on Inagua during the dry season (*Gillis 11738*). It had been found earlier in a pond near Salt Pond Hill on the same island by Dunbar, but unreported in Howard and Dunbar (1964). It is represented by a Dunbar collection at the Arnold Arboretum.

ERIGERON BELLIOIDES DC. Also from Inagua, near Salt Pond Hill, comes this small plant, found by Dunbar (No. 318), but previously unreported. This, too, is represented by a specimen at the Arnold Arboretum.

C O R R E C T I O N S

For ease of reference this section will follow the order of species presented in Britton and Millspaugh's Flora, which will be Monocotyledons first, followed by the Dicotyledons, and then the Pteridophytes. Again for brevity,

the previous flora is referred to by the expression B&M in the text herein. The number preceding the names refers to the page in B&M on which the taxon in question is discussed. The name in capital letters is the name considered to be correct. These names are not necessarily nomenclatural or taxonomic equivalents, hence the reason for not employing an equals sign (=). In some instances, B&M misidentified the plant or used a binomial incorrectly.

GRAMINEAE

16 *Syntherisma sanguinalis*—DIGITARIA CILIARIS (Retz.) Koeler. As Adams (1972) has pointed out, *Digitaria sanguinalis* (L.) Scop., based on *Panicum sanguinale* L., is not the plant of the West Indies. The two plants differ in a number of ways, however subtle. Ebinger (1962), Gould (1963), and Blake (1969) have noted differences in chromosome number, length of second glume in relation to the length of the spikelet, mean pollen size, presence or absence of spicules on the sterile lemma, and presence or absence of papillose-based hairs on the foliage as the differentiating characters. The West Indian species has long been called *Digitaria adscendens* (HBK.) Henrard, based on *Panicum adscendens* HBK., dating from 1816. *Panicum ciliare* Retz., however is the earliest name for this species (1786) and should be taken up. When placed in *Digitaria*, the combination is *D. ciliaris* (Retz.) Koeler, Descr. Gram.: 27 (1802).

24 In the earlier list of corrections in the flora (Gillis, 1974a), a change was not made properly due to a typographical error. It should have read *Panicum coerulescens*—PANICUM CAERULESCENS Hack. ex. Hitchc.

PALMAE

58 *Thrinax microcarpa*—THRINAX MORRISII H. Wendl. Read (1974) has indicated that this small thatch palm must undergo a name change as the result of proper typification.

59 *Coccothrinax argentea*—COCCOTHRINAX ARGENTATA (Jacq.) L. H. Bailey. In the earlier treatment of name changes (Gillis, 1974a) a misplaced line of type made nonsense of the attempt to explain this name change. True *C. argentea* may exist in the southern Bahamas, but this has yet to be demonstrated. It is now treated as being indigenous to Hispaniola. The Bahama plant is *C. argentata*.

RANUNCULACEAE

140 *Clematis bahamica*—CLEMATIS DIOICA L. There appears to be no significant difference in these plants. Therefore, the earlier name must prevail.

LEGUMINOSAE

178 *Sophora tomentosa*—SOPHORA TOMENTOSA subsp. BAHAMENSIS Yakovlev. Earlier, one of us (Gillis, 1974a) indicated that all Bahama plants were typical subspecies and we did not recognize the infraspecific taxa of

Yakovlev (1967a and b). We now find that we should follow his treatment, at least in part, in recognizing that the Bahama plants all represent subsp. *bahamensis* instead of the typical subspecies. In this choice, we follow Rudd (1972).

184 In an earlier updating of nomenclature (Gillis, 1974a), an incorrect author citation was attributed to *Desmodium tortuosum*. It should be *D. tortuosum* (Sw.) DC., based on *Hedysarum tortuosum* Sw., Prodr. 1788.

EUPHORBIACEAE

220 *Phyllanthus niruri*—PHYLLANTHUS AMARUS Schum. & Thonn. Webster (1957) has shown that the widespread plant of ruderal sites in South Florida and the West Indies is not *P. niruri* as often named, but rather *P. amarus*.

TAMARICACEAE

279 *Tamarix gallica*—TAMARIX CANARIENSIS Willd. Upon examination of all specimens of this species available to Britton and Millspaugh from the Turks and Caicos Islands, we find that all they had was sterile material! We have been fortunate enough to find a precocious flowering specimen of the population on Grand Turk for specialist Dr. Bernard Baum to study. Our collection (Gillis 12340; Proctor 34094) was made in June; full flowering in the Turks and Caicos is in July. (Proctor also found it some years ago on South Caicos in flower: Proctor 8907). Dr. Baum determined our material to be *T. canariensis* on the basis of papillae on the perianth. The latitude of the Turks Islands is more compatible with *T. canariensis* than *T. gallica*. We are grateful to Dr. Baum for his courtesy in making this determination for us.

FLACOURTIACEAE

285 *Zuelania guidonia*—CASEARIA GUIDONIA (Sw.) Lundell. Lundell (1974) has merged this species of *Zuelania* with *Casearia*. In absence of broadly described generic lines in this difficult family, it seems appropriate to accept this name change until someone performs considerable in-depth studies in the whole family.

HALORAGIDACEAE

311 *Proserpinaca platycarpa* Small—PROSERPINACA PALUSTRIS L. var. PALUSTRIS. It appears that Small's name for a slightly different population in South Florida influenced Britton in his compilation of the Bahama flora. Small's plant is now considered to be quite typical *P. palustris*.

UMBELLIFERAE

313 *Foeniculum foeniculum*—FOENICULUM VULGARE Mill. In making the name change for this species, Gillis (1974a) used the correct new name, but attributed it to the wrong author. The earliest use of this binomial is by Miller in ed. 8 of the Gardener's Dictionary, Art. *Foeniculum*, No. 1, 20 years

earlier than Gaertner's use.

313 *Centella asiatica*—CENTELLA ERECTA (L.f.) Fern. Fernald (1940) recognized that the Old World *Centella* was different from the common, New World species and based his new combination on *Hydrocotyle erecta* L.f., Suppl. 177. 1781. See also Mathias and Constance, 1944.

314 *Helosciadium ammi*—APIUM LEPTOPHYLLUM (Pers.) F. Muell. in Benth. et Muell. The weedy and cultivated plant of the West Indies and most of North America must have its name based on *Pimpinella leptophylla* Pers. (Syn. Pl. 1: 324. 1805) as shown by Mathias and Constance (1944).

SAPOTACEAE

321 MASTICHODENDRON FOETIDISSIMUM (Jacq.) H. J. Lam. In assigning author citations to *M. foetidissimum* in an earlier paper (Gillis, 1974a), the author of the combination was given as Cronquist. The combination, however, was made by H. J. Lam in 1939.

APOCYNACEAE

338 *Cerbera thevetia* L.—THEVETIA PERUVIANA (Pers.) K. Schum. When this commonly cultivated plant is moved from *Cerbera* to *Thevetia*, the transfer of the Linnaean epithet would result in a tautonym. Hence, the use of a later name in *Thevetia*.

SOLANACEAE

382 *Solanum aculeatissimum*—SOLANUM CILIATUM Lam. The plant commonly found in South Florida and the West Indies has the latter name, and not the former. These two species are closely related, but separated by the fact that *S. aculeatissimum* Jacq. is an Old World species with brown fruits and smaller seeds instead of the red fruits and seeds about 4 mm. in diameter of *S. ciliatum*. In fact, Tjaden (1970) has made a strong case for replacing *S. aculeatissimum* Jacq. by the still earlier (1773) name, *S. capsicoides* Allioni.

383 *Solanum nigrum*—SOLANUM AMERICANUM var. NODIFLORUM (Jacq.) Edmonds. Edmonds (in Stearn, 1971) has discussed the break-up of the aggregate species *Solanum nigrum* into smaller species realities. *Solanum nigrum* appears to be a temperate species now fairly widely distributed in both New and Old World. The *Solanum americanum* complex is also widely distributed, chiefly—but not exclusively—in the tropics, with classic Miller and Jacquin specimens having originated from such diverse places as West Virginia and Mauritius. Differences among members of the *Solanum nigrum* complex are subtle, but consistent, and include polyploidy. The following couplet summarizes differences discussed by Edmonds in making distinctions between *S. nigrum* and *S. americanum*:

Corolla 10-18 mm. across; anthers 1.5-2.7 mm. long; fruit often nodding; berries black or green, ovoid, 6-10 mm. across; seeds 1.7-2.4 mm. long;

pollen 27-38 μ ; sepals usually appressed to fruits; hexaploid ($2n = 72$)
 *S. nigrum*.
 Corolla 5-9 mm. across; anthers 1-2 mm. long; fruit erect; berries black,
 5-7 mm. across; seeds 1.0-1.5 mm. long; pollen 19-24 μ ; sepals well reflexed
 in fruit; diploid ($2n = 24$) *S. americanum*

In *S. americanum*, West Indian and eastern South American plants are usually glabrescent and are interpreted by Edmonds as var. *nodiflorum*. Western South American plants are fairly pubescent and are interpreted by Edmonds as var. *americanum*. Both varieties may be typified by specimens at BM. Our population is *S. americanum* var. *nodiflorum* which is also found in Australia (Henderson, 1974) and New Zealand (Baylis, 1958).

SCROPHULARIACEAE

392 *Agalinus spiciformis*—AGALINUS MARITIMA (Raf.) Raf. According to Pennell's treatment (1929), the plants from the Bahamas fall well within the circumscription of *A. maritima*, an earlier name than *A. spiciformis*. He recognized a large flowered form, var. *grandiflora*, for the Bahama populations.

RUBIACEAE

423 *Spermacoce tenuior*—SPERMACOCE CONFUSA Rendle ex Gillis. Gillis (1974c) validated the publication of Rendle's invalid binomial. Rendle (1936) had neglected to provide a Latin diagnosis which was required at the time of his publication. All populations previously reported from the Bahamas as *S. tenuior* appear to be *S. confusa*. An interpretation by Bacigalupo (1972) would treat *S. tenuior* and *S. confusa* as synonyms.

424 *Galium bermudense*—GALIUM HISPIDULUM Michx. *Galium bermudense* L. is difficult to interpret inasmuch as there is no specimen at the Linnaean Herbarium as is suggested by the way in which Linnaeus wrote the protologue. The two pre-Linnaean names cited in the original description are different species. The Gronovius reference is to *G. pilosum* Aiton, while the Plukenet reference is apparently to the species which we have in our flora. Although one might make a case for taking up one or another of these names and typifying it, tradition since the time of Asa Gray (1878) has been to consider *G. bermudense* to be a *nomen dubium* and eliminate it from consideration. Until and unless someone chooses to resurrect *G. bermudense* L., our plant is best named by the next available binomial, *G. hispidulum* Michx.

We wish to thank Univ. Prof. Dr. F. Ehrendorfer of the Botanisches Institut und Botanischer Garten der Universität Wien for his interpretation of this matter, and for his consent to publish his heretofore unpublished analysis herein. Incidentally, another *Galium* species from Bermuda which might have been confused with Linnaeus's *G. bermudense* is *G. aparine*, representing a binomial of the same date of publication as *G. bermudense*.

COMPOSITAE

- 435 *Vernonia obcordata*—VERNONIA ARBUSCULA Less.
 436 *Vernonia bahamensis*—VERNONIA ARBUSCULA Less.
 436 *Vernonia insularis*—VERNONIA BLODGETTII Small.

As has been our inclination with *Aster* (See Gillis, 1974b), we have interpreted the northwestern populations in the islands to be merely extensions of the ranges of southeastern U.S. species, and not endemics to the Bahamas. Thus, we wish to reduce the number of *Vernonia* species in the archipelago. *Vernonia insularis* Gleason is synonymous with *V. blodgettii* Small, the latter being the earlier name. *Vernonia blodgettii* occurs in South Florida and the so-called *V. insularis* is simply the Bahama extension of its range. (Our judgment is supported by personal communication with Dr. S. B. Jones and Mrs. S. C. Keeley who have *Vernonia* under study.)

Furthermore, we believe that the only woody *Vernonia* in the Bahamas is *V. arbuscula*. The leaf shape variations which have been used to separate this species into two others in addition to *V. arbuscula* are likely environmentally induced, and are highly variable. Typical *V. arbuscula* as seen in the pinelands of New Providence Island has leaves that are chiefly elliptic to ovate. Farther south in the island chain, especially south of the Crooked Island Passage, the leaves become decidedly spatulate. Then, on Little Inagua (and known from only one collection—the type of *V. obcordata*), the leaves appear larger, nearly obcordate. Whether this specimen represents a single individual variation or is typical of the population on Little Inagua cannot be answered at this juncture for lack of material. Our judgment that these several “species” should be merged into *V. arbuscula* is supported by the observations of Mrs. Sterling Keeley (personal communication) who is presently studying the *Vernonias* of the West Indies.

The treatment of *Vernonia* herein eliminates two supposed “endemic” species from the treatment of B&M. It is considerably different from the treatment of *Vernonia* in the Bahamas by Gleason (1906).

KEY TO *VERNONIA* IN THE BAHAMAS

1. Annual. *Vernonia cinerea* (L) Less.
 1. Perennial.
 2. Shrub; heads scorpioid, in axils of upper leaves; foliage canescent or tomentose; leaves ovate, elliptic to obovate, spatulate, or obcordate.
 *Vernonia arbuscula* Less.
 2. Herb; heads cymose, long-peduncled; foliage glabrous or puberulent; leaves narrow, elongated, broadly linear. . . . *Vernonia blodgettii* Small.

SUMMARY

We report herein 20 plants new to the Bahama flora, and explain the change of name for an additional 22 species.

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